British Society of Interventional Radiology
The Royal College of Radiologists
63 Lincoln's Inn Fields
London WC2A 3JW

# Lower Limb Angioplasty

**Credit: Dr Narayanan Thulasidasan, Dr Pelé Banugo, Dr Nazia Khan**

**First published in April 2022. Content reviewed in October 2026.**

**This content is for informational or educational purposes only, and does not constitute professional medical advice or represent a substitute for your own medical judgement. BSIR and the authors accept no liability for any harm, loss or damage occurring as a result of reliance on this information.**

**Chronic Limb-Threatening Ischaemia (CLTI)** is an advanced form of peripheral arterial disease. It is characterised by chronic ischaemic rest pain and/or tissue loss (ulcers or gangrene) affecting one or both legs. Severe atherosclerotic blockage in the arteries of the lower extremities result in markedly reduced blood flow within the lower limb. Its chronicity sets it apart from **acute limb ischaemia** which is a rapid onset decrease in/loss of blood flow affecting the lower limb.

The failure of conservative measures and the onset of debilitating symptoms are indications for surgical intervention. Treatment priority is to preserve the limb. This may be achieved using minimally invasive endovascular therapy or 'open' surgery. Endovascular treatments include:

- **Angioplasty:** balloon dilatation of the occluded segment of the artery
- **Stents:** metal mesh tubes left in place following balloon angioplasty
- **Atherectomy** mechanical debulking of atheroma with a cutting blade or laser

Open techniques remain in use for selected patients, and include endarterectomy (for common femoral artery disease), and bypass grafting (for distal or diffuse disease), which involves bypassing the blocked segment with either an autologous vein or a synthetic graft.

## Anaesthetic Considerations

### Preop

- Patients are typically elderly with multiple, significant comorbidities. Conduct a thorough preoperative assessment, paying close attention to cardiorespiratory status.
- If sedation is planned, assess the patient's ability to lie flat and still for a prolonged period.

- Preoperative potassium levels should be within normal range. Reperfusion may produce a transient hyperkalaemia with potential for cardiac arrhythmias.

## Intraop

### Approach

- General anaesthesia (GA), sedation, peripheral nerve blocks (PNBs), and PNBs + sedation, are all viable options. Central neuraxial blockade is rarely used since a large proportion of patients are on dual antiplatelet therapy (DAPT).
- GA vs sedation: situations where GA may be preferable include long procedures (> 2-3 hours), procedures that require carbon dioxide angiography, where the patient has complex infrapopliteal disease or severe rest pain.
- An alternative approach that works well in the very high-risk patient is sedation combined with femoral and/or popliteal nerve blocks.
- Total intravenous anaesthesia (TIVA) is ideal, as either a GA approach or sedation. Benefits include rapid recovery and minimal postoperative confusion.
- Tip: always ask the radiologist what anaesthetic approach they feel is needed for that particular case. They often know the patients well, how they coped with previous anaesthetic approaches, and the complexity of the current intervention. Use this information to guide your decision making.

### IV access

- Blood loss and fluid shifts are typically negligible. A preoperative blood sample for Group and Save is nonetheless essential.
- Consideration should be given to the fact that rupture or damage to more proximal arteries, e.g. iliac arteries, has the potential for significant blood loss.

### Antibiotics

- Not indicated.

### Analgesia

- A Remifentanil infusion, used as part of a sedation or general anaesthesia approach, minimises the sympathetic response to surgery whilst providing good quality intraoperative analgesia.
- A small dose of fentanyl e.g., 100 mcg, and paracetamol are adequate for most procedures.

### Fluids

- Minimise intravenous fluid administration. Flushes delivered by the radiologist, to flush in drugs such as contrast solution, heparin and nitrates, provide a moderate

fluid load. Exercise extreme caution in fluid-restricted patients e.g., patients on dialysis.

- A vasopressor infusion (e.g., metaraminol or phenylephrine) is useful in maintaining haemodynamic stability and reducing the need for excessive fluid administration.
- Consider the placement of a urinary catheter for prolonged procedures. If a catheter has not been placed pre-emptively, ask the radiologist to scan the patient's bladder, prior to extubation, to assess the need for catheterisation.

**Extubation**

- Coughing and straining can provoke bleeding from the puncture site. Aim for a smooth extubation by extubating the patient deep, if appropriate, or extubating with remifentanil still running.
- Patients are often required to lie flat for 2 hours post-procedure (to prevent disruption of the platelet plug at the groin puncture site). Tilting the bed into a reverse trendelenberg position allows the patient to remain flat whilst in a head up position.

## Postop

- Most patients do not require additional analgesia in the Recovery Room. Additional analgesia may be required for patients with chronic pain, rest pain, and significant reperfusion pain. Reperfusion pain may last for up to 1 week.
- Postoperative destination is  the vascular surgery ward.